

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendments, claims 1-5 and 7-19 are pending in the application, with claims 1 and 11 being the independent claims. Claim 2 is sought to be amended. Claims 11-19 are sought to be added. Claim 6 was previously canceled. Applicants reserve the right to prosecute similar or broader claims, with respect to the canceled and amended claims, in the future. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendments and the following remarks, Applicants respectfully request the Examiner to reconsider and withdraw all outstanding rejections.

***Rejection under 35 U.S.C. § 103***

On page 2 of the Office Action, the Examiner rejected claims 1-5 and 7-10, under 35 U.S.C. § 103(a), as allegedly being unpatentable over U.S. Patent No. 5,641,341 to Heller *et al.* (hereinafter "Heller") in view of Chinese Patent Number CN 2348917 (hereinafter "the Chinese reference"). Applicants respectfully traverse.

Claim 1 recites features that distinguish over the applied reference. For example, claim 1 recites "a cleaning **device**... comprising: a cleaning **chamber** comprising... a deposition wall having a surface... configured to receive a film of the cleaning liquid and being configured to be an outer wall of the cleaning **device**."

The Examiner states on page 2 of the Office Action that Heller fails to disclose a deposition wall having a surface configured to receive a film of liquid. Rather, the Examiner relies on Fig. 1 of the Chinese reference to allegedly cure the deficiency of

Heller, alleging that it would have been obvious to provide a dust remover forming a liquid film on the **outer** wall of the **device** as taught by the Chinese reference. Applicants respectfully disagree with this interpretation of the Chinese reference, and respectfully submit that the Chinese reference fails to disclose, teach, or suggest at least the above-noted features recited in claim 1.

For example, Fig. 1 of the Chinese reference appears to disclose that the liquid is isolated within each pipe 5 by upper spacer 4 and baffle 8. The walls of the pipes 5 fail to be configured to be an outer wall of the casing 3, because Fig. 1 illustrates that the pipes 5 are isolated away from the outer wall of the casing 3 by the upper spacer 4 and the baffle 8.

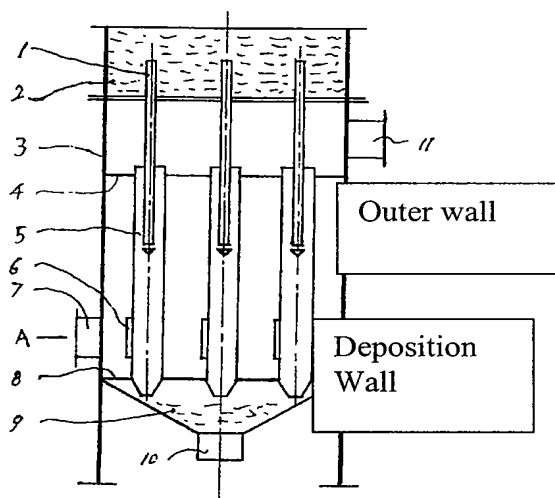


图1

Figure 1 of the Chinese Reference

FIG 3

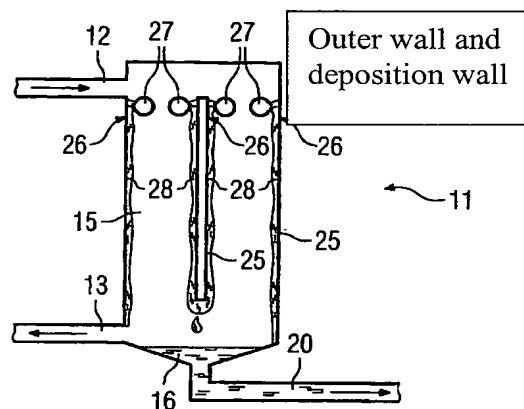


Figure 3 of the present application

As seen above, the Chinese reference does not teach or suggest "a deposition wall having a surface... configured to receive a film of the cleaning liquid and being configured to be an outer wall of the cleaning device," as recited in claim 1. This is because the outer walls of the casing 3 in the Chinese reference do not receive a film of liquid, and are not configured to receive a film of liquid, because the liquid is confined

within the tank 2, nozzle 1, pipe 5, and basin 9, and any liquid on the casing wall 3 would be prevented by the baffle 8 from entering the ash settling basin 9.

Also, Applicants assert the Chinese reference teaches away from isolating one of the pipes in an attempt to read on the claimed features. "A *prima facie* case of obviousness can be rebutted if the applicant . . . can show 'that the art in any material aspect taught away' from the claimed invention." *In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997). "A reference may be said to teach away when a person of ordinary skill, upon reading the reference . . . would be led in a direction divergent from the path that was taken by the applicant." *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999). When determining if a cited reference teaches away, a reference should be considered as a whole, and portions arguing against or teaching away from the claimed invention must be considered. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 230 USPQ 416 (Fed. Cir. 1986); *Gillette Co. v. S.C. Johnson & Sons, Inc.*, 919 F.2d 720, 724, 16 USPQ2d 1923, 1927 (Fed. Cir. 1990) (stating that the closest prior art reference "would likely discourage the art worker from attempting the substitution suggested by [the inventor/patentee]"). The United States Supreme Court has also recently opined about the impact of teaching away on nonobviousness, stating in *KSR Int'l. Co. v. Teleflex, Inc.* "[w]hen the prior art teaches away from combining certain known elements, discovery of successful means of combining them is more likely to be nonobvious." 550 U.S. \_\_\_, 127 S. Ct. 1727, 82 U.S.P.Q.2d 1385 (2007).

Based on a machine-generated translation of the Chinese reference, attached hereto as Exhibit A, the structure of the device in the Chinese reference relates to

increased efficiency. The Chinese reference appears to disclose that conventional boiler water film dust removal is mostly single-pipe, unlike the allegedly novel multi-pipe construction invention discussed in the Chinese reference. Therefore, reducing the multi-pipe structure of the Chinese reference to one pipe would seem to cut the resulting efficiency to one-ninth, i.e., teach away from the purpose of the Chinese reference, because the Chinese reference teaches using nine pipes for increased efficiency.

Thus, the applied references cannot be used to establish a prima facie case of obviousness for claim 1.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 1, and find it allowable over the applied references. Also, at least based on their dependency from claim 1, rejected claims 2-5 and 7-10 should be found allowable over the applied references, as well as for their additional distinguishing features.

### ***Newly Presented Claims***

New independent claim 11 recites features that distinguish over the cited references. For example, claim 11 recites in part:

wherein at least one of the plurality of deposition walls is an inner surface of an outer wall of the system.

Support for claim 11 can be found, for example, in previously presented claims 1 and 7, and Fig. 3. Applicants submit that independent claim 11 is allowable for at least the same reasons set forth above regarding similar distinguishing features recited, using respective language, in independent claim 1.

New claims 12-19 depending from claim 11 recite similar distinguishing features using respective language as recited in claims 2-5 and 7-10 depending from claim 1. Thus, at least based on their dependency from claim 11, claims 12-19 should be found allowable, as well as for their additional distinguishing features.

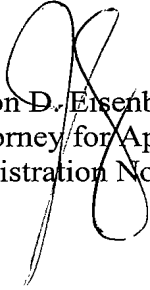
### ***Conclusion***

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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Application Number: 98240688

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## Bibliographic Data :

Title: Boiler multi-pipe water membrane dust remover

Application Number: 98240688      Application Date: 1998.09.29

Publication Number: 2348917      Publication Date: 1999.11.17

IPC: B01D61/38

Applicant: Zhao Xingyu

Inventor: **[ MT ]** Zhao Xingyu

Priority Information:

Abstract: **[ MT ]** The patent refers to the field of 'separation using semi-permeable membranes; dialysis, osmosis, ultrafiltration'. One boiler polysiphonous water membrane duster to include body, water tank, dust collection tube, round sew the shower nozzle, sink the gray pool, enter the smoke oral cavity, the smoke oral cavity appears. Distribute several vertical dust collection tube evenly in the body, each dust collection intracanalicular part install, have with dust collection tube parallel round seam shower nozzle, water is squirted from the shower nozzle, form the homogeneous and continuous moisture film, when the Gas fume passes the dust collection tube, the smoker dust is absorbed by the moisture film, thus achieve the goal of removing dust. The structure of this utility model is rational, dust collection is effectual, with high efficiency, the water consumption is small.

## Legal Status :

Legal Status Publication Date: 1999.11.17  
Legal Status : granted

Legal Status Publication Date: 2001.11.21  
Legal Status : cessation of patent right (cessation of patent right due to non-payment of the annual fee)

# 说明书附图

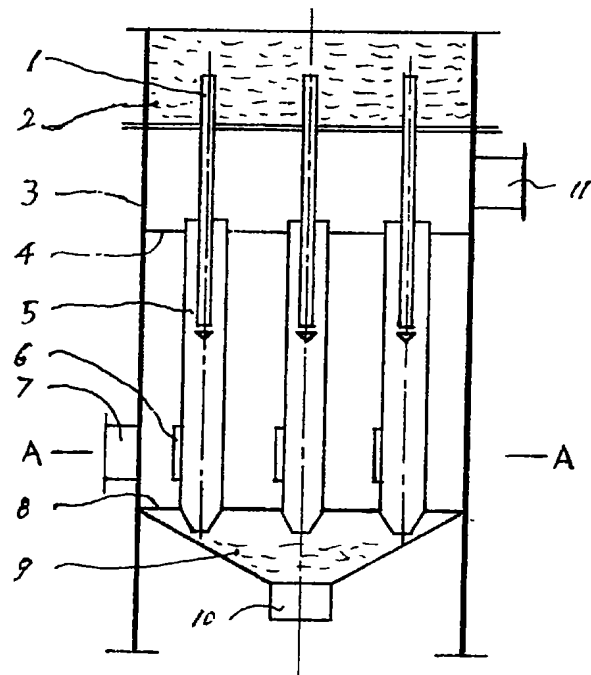


图1

A-A

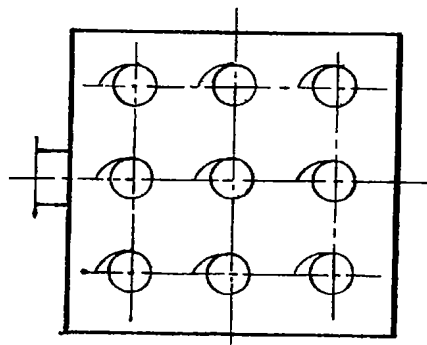


图2



## Boiler multitube water dust scrubber

This utility model relates to a boiler dust remover, especially a boiler multitube water dust scrubber.

Present boiler water film dust remover is mostly the single tube formula, and its water mode is mostly the overflow formula, and water forms the water film along the cross flow of dust remover pipe wall at the pipe wall. This kind of structure exists following not enoughly:

1, only forming the water film on the dust remover pipe wall, and not forming the water film in intraductal space, lead to the fact the dust collection efficiency of present boiler water film dust remover not high, the dust removal effect is unsatisfactory;

2, contain a large amount of steams in the purified gas of dust remover, corrode pipeline and draught fan;

3, present boiler water film dust remover water consumption is great.

The purpose of this utility model be exactly to provide a dust collection efficiency height, the dust removal is effectual, the water consumption is little, the purified gas water content low, boiler multitube water dust scrubber rational in infrastructure.

For realizing above-mentioned purpose, this utility model adopts the technical scheme that is described below: boiler multitube water dust scrubber includes casing, water tank, dust removal pipe, circle seam shower nozzle, ash settling basin, advances mouth, outlet flue. Have the vertical dust removal pipe of a plurality of at the upper spacer with evenly distributed between the baffle down in the casing, every remove dust intraductal all install with tub parallel circle seam shower nozzle that removes dust, circle seam shower nozzle one end and water tank switch-on, the pipe that removes dust enter tangent line or the helical line position that the mouth is in the pipe that removes dust, advance that the mouth is managed through removing dust and the outlet flue communicates with each other.

This utility model adopts a plurality of dust removals pipe with the boiler gas cleaning, and circle seam shower nozzle removes dust at every and intraductally all forms even continuous water film with the pipe wall, and it is effectual, efficient to remove dust, and the water content is low in the purified gas, can effectively reduce the pipeline and corrode, and this device water consumption is little, small, the cost is hanged down.

The face bonding figure carries out detailed explanation to this utility model down.

The sketch map is looked for this utility model owner to Fig. 1.

Fig. 2 is the A-A cross sectional view of Fig. 1.

According to Fig. 1, Fig. 2. Boiler multitube water dust scrubber includes casing 3, water tank 2, the pipe 5 that removes dust, circle seam shower nozzle 1, ash settling basin 9, advances mouth 6 and 7, the upper spacer 4 in 11. casings 3 of outlet flue and baffle down are evenly distributed between 8 has a vertical dust removal pipe 5 of a plurality of, every remove dust intraductal install one with the parallel circle seam shower nozzle 1 of pipe that removes dust, circle seam shower nozzle one end and 2 switch-ons in the water tank, the pipe that removes dust enter tangent line or the helical line positions that mouth 6 is in the pipe that removes dust, advance mouth 7 through the dust removal manage 5 and outlet flue 11 communicate with each other. The smoke and dust gets into the pipe that removes dust along tangent line or helical line orientation, the effect underspin of centrifugal force turn to with remove dust intraductal and inner wall on the water film combine, dust granule weight gain after the combination falls into ash settling basin 9, from going out 10 discharges in the dirt mouth.

## Claim

1, boiler multitube water dust scrubber including casing (3), water tank (2), the pipe (5) that removes dust, circle seam shower nozzle (1), ash settling basin (9), enter mouth (6) and (7), outlet flue (11), characterized in: upper spacer (4) in casing (3) have a vertical dust removal pipe of placing of a plurality of with evenly distributed between baffle (8) down, every remove dust intraductal install one with the parallel circle seam shower nozzle (1) of pipe that removes dust, it is round that stitch shower nozzle one end and water tank (2) are put through; Enter tangent line or helical line position that mouth (6) are in the pipe that removes dust, enter mouth (7) and communicate with each other with outlet flue (11) through the pipe (5) that removes dust.